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USSR ACTIVITIES IN THE FIELD OF SEISMOLOGY

1. SEISMIC STATIONS

The publication edited by the acting director of the Seismological Institute of the Academy of Sciences, Professor V. F. Bonchkovskiy, contains three articles dealing with the 20 April 1941 earthquake in Garm (Tadzhik SSR), which summarize and evaluate the data collected on this disturbance. The articles are: "The Garm Earthquake of 20 April 1941 According to Data of the Teleseismic Net of the USSR," by N. A. Linden; "Results of a Study of the Garm Earthquake of 20 April 1941," by A. Ya. Levitskaya; and "Some Problems of Accuracy of Interpretation and the 1941 Garm Earthquake," by Ye. F. Savarenskiy. The following lists of seismic stations in the USSR have been extracted from these articles:

A. Teleseismic Stations

Baku
Sverdlovsk
Irkutsk
Moscow
Pulkovo
Vladivostok
Tbilisi

B. Regional Stations

Gori
Groznyy
Pyatigorsk
Feodosiya
Yalta
Semipalatinsk

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C. Regional Seismic Stations of Central Asia

Stalinabad
Andizhan
Tashkent
Samarkand
Chimkent
Frunze
Alma-Ata
Semipalatinsk

D. Stations Reporting the Garm Earthquake (Type Not Specified)

Yerevan
Sochi
Simferopol'

II. SEISMIC EQUIPMENT

The article by Ye. F. Savarenskiy (see above) contains the following information on installations of specific types of seismic equipment:

"Figures 7 and 8 show copies of parts of seismograms from the seismic stations in Pulkovo, Moscow and Sverdlovsk, produced by seismographs of Academician B. B. Golitsyn's system, and from the stations in Simferopol' and Grozny, produced by seismographs of Professor P. M. Nikiforov's system." /"Golitsyn" is actual Russian spelling of the name sometimes rendered Galitzin or Golitzin./

III. SEISMIC RESEARCH

The following are abstracts of the remaining articles contained in the publication:

"The Dispersion of Rayleigh Waves in a Stratum," V. G. Gogoladze, 12 pp

Investigates the dispersion of Rayleigh waves in a plane-parallel stratum with arbitrary values of the Lamé elasticity constants λ and μ, and of the density ρ.

"The Natural Oscillation of an Elastic Stratum Resting on a Rigid Base," V. G. Gogoladze, 7 pp.

Investigates natural oscillation in a plane-parallel layer whose base is rigidly fixed to an elastic semispace. The layer and semispace have arbitrary values of elasticity constants and density.

"On the Oscillations of a Thin Elastic Stratum Resting on an Elastic Semispace Under the Action of a Concentrated Vertical Harmonic Force Directed Toward the Free Surface of the Stratum," M. A. Naymark, 17 pp

Investigates some properties of the equations for the frequency of Rayleigh waves on the free surface of an elastic stratum which rests on an elastic semispace. It is shown in particular that if the depth of the stratum

does not exceed a certain constant, related to the frequency of the external force and the elastic properties of both media, then the equation will have exactly one positive and one negative root. From this the asymptotic values for the components of displacement on the free surface of the stratum are obtained.

"On the Hodographs of Seismic Waves Reflected From the Lower Boundary of a Medium With Variable Velocity of Propagation of the Elastic Waves," S. I. Masarskiy, 10 pp

Investigates the problem of the nature of hodographs for reflected waves. The equation for the hodograph curve is given in parametric form. The hodograph is shown to possess a minimum under certain conditions of oscillation of a reflecting boundary. Research is presented on the trajectories of seismic rays. It is shown that utilization of the hodograph for interpretation of mean velocity is inevitably connected with the introduction of some errors of a fundamental character.

"The Method of Statically Equivalent Forces Applied to the Problem of Ground Oscillations," A. Z. Kats and S. V. Puchkov, 9 pp

Introduces formulas for the approximation calculation of displacement and tension in an elastic semispace, producing a concentrated force whose duration likewise varies sinusoidally. The formulas are derived under the assumption that the law of distribution of displacement is such that, as in the case of the action of a static force, one may determine the corresponding and statically equivalent force. A comparison of the computed data with the experimental shows that the degree of approximation is sufficient for practical purposes.

"The Problem of the Computation of the Seismic Activity of a Region During Construction Work," S. V. Medvedev, 3 pp

Proposes dividing the seismic regions of a country into zones of various seismic activity. Such sectioning would make it possible to differentiate the seismic stability requirements in relation to building assignments and their location.

"On the Seismic Properties of the Eastern Part of the Baltic Platform," G. P. Gorshkov, 10

Investigates the conditions for the emergence of earthquakes in the territory of the Baltic platform. A full list of earthquakes is given for the Soviet portion of this area, i.e., for the Kola Peninsula, Karelo-Finnish SSR, and the northwestern portions of Leningrad Oblast. Of the 25 earthquakes in the list, 14 may be referred to local tectonics. All these are concentrated in the northern part of the area, showing the increased activity of the newest tectonic movements in these locations in comparison with those further south.

"On a Modification of the Golitsyn System of Galvanometric Registration," N. V. Voskresenskiy and D. P. Kirnos, 8 pp

Describes a new modification of galvanometric registration in which an electrodynamic seismograph is used to record transfers of oscillating soils. Describes the principles of the arrangement necessary for the given purpose

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of galvanometry and presents the results of experimental research work on all installations.

"Apparatus for Research Upon and Calibration of Vertical Seismographs," N. V. Veshnyakov, 3 pp

Describes a vibration platform for subject research. Short descriptions are given of existing types of platforms for those purposes, with an account of their special features, and information on how the subject apparatus meets the requirements of the work.

"A Duplex Friction Reducer Apparatus for the Paper-Tape Mechanism of an Oscillograph," Ye. S. Borisevich, 7 pp

Describes the construction of and gives basic data concerning the first experimental model of a duplex friction reducer apparatus for nongradiational regulation of the speed of the photographic tape in an oscillograph. Conclusions based on laboratory experiments and on other data, on the possibility of practical application of such a device are given.

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